

# Monroe County Sanitary Wastewater Master Plan

Submitted to  
*Monroe County,  
Florida*

Submitted by  
**CH2MHILL**

in Association with  
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## **SUPPORTING DOCUMENTS**

### **VOLUME 3**

- Proceedings and Summary Report for Decision Analysis Phase A
- Decision Analysis, Phase B, Proceedings and Summary Report for Siting Decision Model
- Decision Analysis, Phase C, Proceedings and Summary Report for Wastewater Management Alternatives Decision Model
- Decision Analysis, Phase D, Timing and Implementation Issues





Initial Public Forums Summary Report

Public Forums Summary Report

Summary Report of Initial Meetings Conducted with Civic, Business and Environmental Groups Throughout the Keys

Summary Report of Meetings Conducted with Civic, Business, and Environmental Groups throughout the Keys during Solutions Phase of the Master Plan

TM1—Evaluation of Existing Databases

TM2—Master Wastewater Database Development

TM3—Wastewater Flow Analysis

TM4—Analysis of Wastewater Derived Nutrients from Developed Land-Based Areas of the Keys

#### **VOLUME 4**

TM5—Evaluation of Existing Wastewater Facilities

TM6—Collection System Alternatives

TM7—Technology Assessment of Onsite Wastewater Treatment Systems

OWTS Technology Assessment No. 1: A Primer on Onsite Wastewater Treatment Systems (OWTS)

OWTS Technology Assessment No. 2: Non-Water Carriage Toilets

TM8—Assessment of Secondary and Advanced Wastewater Treatment Technologies

TM8S—Assessment of Wastewater Treatment Costs to Provide Phosphorus Removal Only

TM9—Effluent Management Technologies

TM10—Solids Management Technologies Wastewater Solids Management Plan for Monroe County





## **VOLUME 5**

TM11—Wastewater Facilities Siting Analysis

TM12—Wastewater Management Alternatives and Service Area Analyses

Preliminary Screening Areas—Wastewater Management Alternatives Screening Process

Final Screening of Wastewater Management Alternatives  
Combinations of Wastewater Study Areas  
Service Area Expansions of Existing WWTPs

## **VOLUME 6**

Preliminary Screening Areas—Wastewater Management Alternatives Screening Process

## **VOLUME 7**

Final Screening Alternatives of Wastewater Management Alternatives

## **VOLUME 8**

TM13—Service Area Implementation Plan

TM14—Wastewater Management and Administration Plan  
Funding Evaluation Report  
Marathon Area Wastewater System Funding Proposal  
Funding History Summary Report

TM15—Wastewater Treatment Financing Plan

TM16—Review of Agency Statutes/Regulations

TM17—Overview of Other Wastewater-Related Studies





## Glossary of Terms

### **Photography Credits:**

Bill Keough, p. 5-2  
Larry Benvenuti, cover and reef scenes  
throughout this Master Plan

ADF	average daily flow
AMSA	Association of Metropolitan Sewerage Agencies
ASR	aquifer storage and recovery
ATU	aerobic treatment unit
AWT	advanced wastewater treatment
BAT	best available technology
BOD	biochemical oxygen demand
BOCC	Board of County Commissioners
CARL	Conservation and Recreation Lands Program
CBOD	carbonaceous 5-day biochemical oxygen demand
cf <sup>5</sup>	cubic feet
cfm	cubic feet per minute
<i>CFR</i>	<i>Code of Federal Regulations</i>
COBRA	Coastal Barrier Resources System
DBOOT	design, build, own, operate, and transfer
DIW	deep injection well
DO	dissolved oxygen
DUS	Department of Utility Services
EDU	equivalent dwelling unit
EPA	U.S. Environmental Protection Agency
FAC	Florida Administrative Code
FDBOOT	finance, design, build, own, operate, and transfer
FDEP	Florida Department of Environmental Protection
FDOH	Florida Department of Health
FDOT	Florida Department of Transportation
FEMA	Federal Emergency Management Administration





FKAA	Florida Keys Aqueduct Authority
FMRI	Florida Marine Research Institute
ft	feet
gal	gallon
GIS	Geographic Information System
gpd	gallons per day
GO	general obligation
I/I	infiltration and inflow
ID	inner diameter
LID	local improvement district
Master Plan	<i>Sanitary Wastewater Master Plan</i>
MCDOH	Monroe County Department of Health
MCPHU	Monroe County Public Health Unit
MDWASD	Miami-Dade Water and Sewer Department
MLE	Modified Ludzak-Ettinger Process
mgd	million gallons per day
mg/L	milligrams per Liter
MOU	Memorandum of Understanding
MPCA	Minnesota Pollution Control Agency
MSTU	Municipal Services Taxing Units
MSBU	Municipal Services Benefit Units
N	nitrogen
NPDES	National Pollutant Discharge Elimination System
NPV	net present value
O&M	operation and maintenance
OWMZ	Onsite Wastewater Management Zone
OWNRS	onsite wastewater nutrient reduction system
OWTS	onsite wastewater treatment system
P	phosphorus
PAED	Planning Area Analysis/Enumeration District
PB	performance-based





RE	real estate
RFP	request for proposal
ROGO	Rate of Growth Ordinance (Monroe County)
SA	service area
SBR	sequencing batch reactors
SDI	subsurface drip irrigation system
SFRWQCB	San Francisco Regional Water Quality Control Board
SFWMD	South Florida Water Management District
SRF	State Revolving Fund
SWIS	subsurface wastewater infiltration system
SWMP TAC	Sanitary Wastewater Master Plan Technical Advisory Committee
Task Force	Monroe County Citizens Task Force on Wastewater
TIF	tax increment financing
TMDL	total maximum daily load
TN	total nitrogen
TP	total phosphorus
TSS	total suspended solids
USACOE	U.S. Army Corps of Engineers
USDW	Underground Source of Drinking Water
USGS	United States Geological Survey
UV	ultraviolet
WAS	waste activated sludge
WQSC	Water Quality Steering Committee
WWTP	wastewater treatment plant

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